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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,332	12/12/2001	Seong-Joong Kim	678-735(P10196)	1734

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EXAMINER	
RAMAKRISHNAIAH, MELUR	
ART UNIT	**PAPER NUMBER**
2614	
MAIL DATE	**DELIVERY MODE**
05/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/020,332	KIM, SEONG-JOONG	
	Examiner	Art Unit	
	Melur Ramakrishnaiah	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-7* is/are rejected.

7)☐ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7-11-05/12-23-05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

NOTE: In view of Applicant's arguments, Final rejection dated 8-1-2007 is with drawn. New rejection follows below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitama (US PAT: 6,175,728) in view of Ratto (US PAT: 6,993,091, filed 9-26-2001).

Regarding claim 1, Mitama discloses a direct conversion receiver for substantially removing DC offset signals in a mobile communication terminal, the receiver comprising: converting means (73a, fig. 11) for down converting a modulated signal received from an antenna (91, fig. 11), detecting means (reads on 81a/81b, fig. 11) for detecting a difference between two DC offset signal components, and adjusting means (82, 83a/83b, fig. 11) for substantially reducing the difference (col. 2 lines 19-25).

Regarding claim 5, Mitama discloses a method for substantially removing DC offset signals utilizing a direct-conversion receiver, the method comprising the steps of: down converting a modulated signal receiver from an antenna (91, fig. 1), detecting a difference between the DC offset signal components from balanced mixers (73a, fig. 11)

and adjusting the difference between detected DC offset signals components to minimize the difference (col. 2 lines 19-25).

Mitama differs from claims 1 and 5 in that although he discloses eliminating DC offset as shown above, he does not specifically discloses details of effecting it such as determining whether DC offset is zero and outputting a control voltage to adjust DC-offset to zero.

However, Ratto discloses correction of DC-OFFSET of I/Q modulator which teaches the following: determining whether DC offset is zero and outputting a control voltage to adjust DC-offset to zero (figs. 1-2, see abstract; col. 3 lines 10-31).

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Mitama's system to provide for the following: determining whether DC offset is zero and outputting a control voltage to adjust DC-offset to zero as this arrangement would provide implementing means to adjust DC-offset to zero by using feedback signals as taught by Ratto.

Regarding claim 4, Mitama teaches the following: a switching means (20, fig. 1) for connecting the converting means to detecting means (fig. 1, col. 6, line 59 – col. 7, line 4).

Regarding claim 6-7, Mitama further teaches the following: outputting a value to minimize the difference, mixing a signal provided by low noise amplifier (72, fig. 11) with two I/Q components generated in local oscillator (74, fig. 11), respectively, converting the mixed signal into a base band signal, and amplifying (by 77a/77b, fig. 11) the base

band signal based upon a value generated by an adjustment means of the direct conversion receiver (col. 2 lines 19-25).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitama in view of Ratto as applied to claim 1 above, and further in view of Kataoka et al. (JP410247953A, hereinafter Kataoka).

Regarding claim 2, the combination teaches the following: at least one mixer (73a, fig. 11 of '728) for mixing the signal provided from a low amplifier (72, fig. 11 of '728) with two I/Q components, at least one low pass filter (76a fig. 11 of '728) for eliminating spurious signals generated in the mixers, and at least one compensation amplifier (77a fig. 11 of '728) for compensating the DC offset signal, wherein the first amplifier has a fixed gain (col. 2 lines 19-25).

The combination differs from claim 2 in that he does not teach the following: I and Q components that are separated by 180 degree in phase and second amplifier has a variable gain.

However, Adachi teaches the following: I and Q components that are separated by 180 degree in phase (fig. 2, paragraph: 40-42); Kataoka discloses receiver which teaches the following: amplifier (8, fig. 1) has a variable gain.

Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the combination to provide for the following: I and Q components that are separated by 180 degree in phase as this arrangement as this arrangement would provide one of the methods, among many possible methods to generate I and Q components as taught by Adachi; second amplifier has a variable gain

as this arrangement would provide means for fine tuning DC offset cancellation in the receiver as taught by Kataoka.

4. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melur Ramakrishnaiah whose telephone number is (571)272-8098. The examiner can normally be reached on 9 Hr schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Melur Ramakr.

Melur Ramakrishnaiah
Primary Examiner
Art Unit 2614